FAA AVIATION NEWS

JUNE 1966

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COVER

The ins and outs (as well as the ups and downs) of seaplane flying are reviewed on page 8. Most skillful landplane pilots find the transition to seaplanes relatively easy.

FAA AVIATION NEWS

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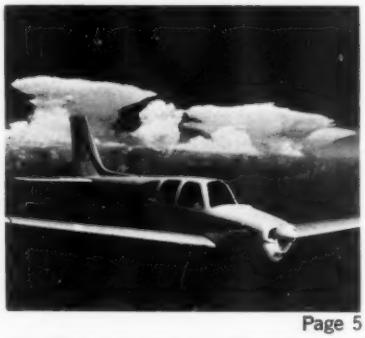

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Fury Aloft

THUNDERSTORMS

Thunderstorms are bad business. Experts conservatively estimate the kinetic energy roiling around in even a moderate size thunderstorm packs more of a wallop than the atomic bomb that flattened Nagasaki in 1945.

In more practical terms, pilots in light planes not equipped to fly near turbulent thunderstorms should stay on the ground and wait them out, take the long way around or reverse their flight path and get out of the way, even if it means cancelling the flight.

Deliberately penetrating a thunderstorm in a small light aircraft is plain suicide.

With the peak U.S. thunderstorm season arriving in June for a three-month stay, pilots are well advised to brush up on weather lore. This is a case where a little bit of knowledge is better than none and every little bit helps. The main thing to remember is summed up very briefly: *Avoid thunderstorms.*

During the summer months nearly three-fourths of the land area of the 48 contiguous states can expect thunderstorms on an average of one every four days. The other one-fourth can expect thunder and lightning every third day and a relatively small area in Florida is likely to have thunderstorms every other day. These storms are rare along the west coast, but almost everywhere east of the Rocky Mountains pilots can expect at least 20 summer days of thunderstorms.

Three basic ingredients go into making a thunderstorm—unstable air, lifting action and high moisture content. When brought together in the proper proportions, they form a thunderstorm with a three-stage life cycle—cumulus, mature and dissipating. Most are isolated and large enough to be seen from a safe distance, providing time to bypass them safely.

A notable exception is the squall line T-storms which band together in chains that may extend for hundreds of miles. To the pilot untrained in weather flying in an unequipped plane, this type of storm offers only one option—land as soon as possible, even if it means doing a 180 and flying back where he came from.

Sometimes this is not practical or possible. With some 44,000 thunderstorms

The wicked black heart of this cumulo-nimbus leaves no doubt about the violence of a thunderstorm.

occurring daily over the world, almost every active pilot can expect to face them occasionally. Since squall line storms move rapidly, a pilot might find himself "caught" before he knows what is happening.

If caught in a storm, the pilot should make sure that all loose gear is securely fastened down. The pilot and other persons aboard must be tightly strapped in. The aircraft should be trimmed for straight and level flight. Instruments, lights, deicing and oxygen equipment, fuel mixture, r.p.m. and manifold pressure should be checked so that changes in control settings can be minimized. Pilots should tune the radio to the station that will be used while the plane is in the storm area and should not change the setting except for good reason until the storm is passed.

In the case of T-storms, appearances are a good guide to violence. According to extensive Air Force studies, the blacker the clouds, the rougher the storm. Similarly, the region with the most lightning is more turbulent than the rest of the storm. Lightning strikes to aircraft are common and are not necessarily dangerous or damaging. Planes have often been struck with little or no damage. One Air Force pilot flying T-storm research in "Project Roughrider" estimated that his craft was struck 20 to 30 times in a single pass through a storm.

St. Elmo's fire is another frequently encountered phenomenon and generally harmless. Planes flying through cumuloform clouds frequently acquire a high static charge which leaks off the wing tips and propeller arc in a bluish green glow. Both lightning and St. Elmo's fire have a disturbing effect on VHF and VOR reception and bearing accuracy for short periods. Static wicks and good bonding will do a lot to eliminate or reduce static charge interference.

Additional hazards to flight found in and around T-storms include strong gusty winds, turbulence, heavy rain, icing and often hail. Any one of these can give a pilot more of a problem than he wants to handle and it is not rare to encounter all of them simultaneously.

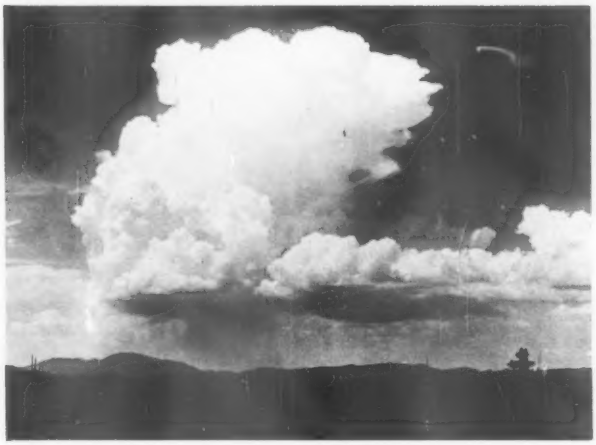
Gusty winds and turbulence are for all practical purposes the same thing, but for the record a fine line distinction can be made: T-storm turbulence is due to up and down drafts; gusts are small vertical or horizontal forces associated with the drafts.

Pilots are advised to let the airplane ride out the turbulence but to notify air traffic control of any changes from assigned altitude. The manufacturers recommended airspeed for flying in turbulence should be followed and pilots should stick to a heading to avoid the risk of flying into the same storm more than once.

Heavy precipitation is encountered inside clouds. In the Air Force's "Project Roughrider," pilots encountered liquid water at 40,000 feet where outside air temperature ran well below freezing. In other instances they found hailstones

For all its spectacular pyrotechnics, lightning itself presents only a small hazard to aircraft. However, turbulence and lightning lurk in the same area. Above right, with a textbook example of classic thunderstorm clouds in the background, this pilot is taking the prudent course by flying away from the area of possible danger. Right, this example of an air mass thunderstorm includes a heavy discharge of rain.

Photos from U.S. Weather Bureau



at 45,000 feet in completely clear air as far as five miles from the storm on the downwind side.

Thunderstorm icing is generally not a great problem as the length of time needed to traverse many storms is only about five minutes. But as a precaution, pitot heat should be turned on when flying in the vicinity of a T-storm.

The following tips on thunderstorm flying are of value *only* if they are read and understood *before* an encounter with a T-storm:

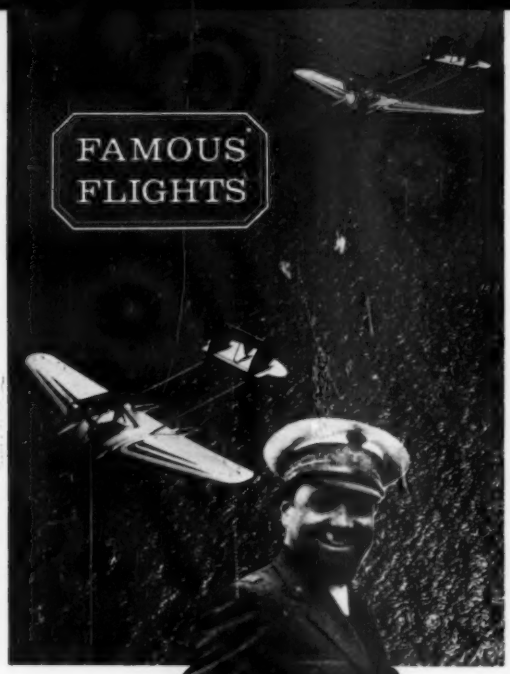
- Pilots of all aircraft should avoid thunderstorms because the safety of the aircraft is not related to its size.
- When flying around thunderstorms flyers should not venture closer than five miles to any mature storm cloud with overhanging anvils because of the possibility of encountering hail.
- Do not attempt to fly under mountain thunderstorms even if the area on the other side of the mountains can be seen. The flow of wind strong enough to produce the thunderstorms may also create dangerous turbulence between mountain peaks. This turbulence, together with downdrafts, can cause disaster.
- If possible, pilots should avoid flying under *any* thunderstorms because of updrafts under growing storms and downdrafts under mature storms.

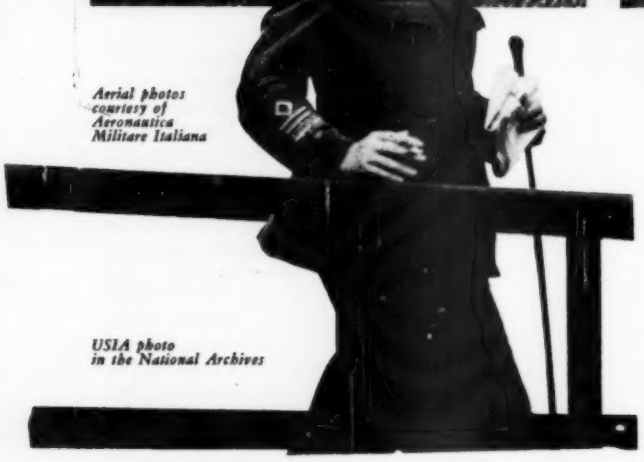
A decision to fly or remain on the ground when thunderstorms are known to exist should be based upon:

- Experience in flying near thunderstorms.
- Type of aircraft and the amount of stress it can stand.
- Whether or not the aircraft is radar-equipped.
- The vertical extent and physical appearance of the thunderstorm clouds. Any thunderstorm indicating echo tops of 35,000 feet or higher on ground-based radar should be avoided, regardless of other considerations, because of the extreme severity of related hazards.

If the decision is to go:

- *Turn up the cockpit lights* to the highest intensity. Dark glasses often are used to avoid temporary blindness from lightning flashes.
- *Establish penetration altitude.* Avoid altitudes from the freezing level upward to —10°C (roughly 5,000 feet above the freezing level). This usually is the most severe region of the thunderstorm. If information on the height of the freezing level was not obtained prior to takeoff, check with the traffic controller or flight service station. The "softest" altitude in a thunderstorm cloud is usually between 4,000 and 6,000 feet; 4,000 feet above the highest terrain in the area should be the minimum penetration altitude.
- *Use the airspeed* recommended by the manufacturer for turbulent air penetration to maintain the best possible control. This also reduces the structural stresses caused by turbulence.
- *Change power settings* to establish the reduced airspeed and trim the aircraft to suit the new power setting *before* entering the storm.
- *Keep constant power settings in the storm* because the airspeed indicator gives false readings in vertical drafts or in heavy rain.
- *Fly in a straight and level attitude.* Keep your flight as constant as possible; avoid unnecessary maneuvering to lessen stresses on the aircraft.





Aerial photos courtesy of Aeronautica Militare Italiana

USIA photo in the National Archives

Convinces World of Feasibility of Oceanic Flight

BALBO CONQUERS THE ATLANTIC

"BASTA OSARE!" (To dare is enough!)

These words describe the indomitable spirit of swashbuckling Italo Balbo who—though an Italian fascist—captured American as well as Latin hearts during the depression years.

The mass flight of 24 two-engine flying boats he led from Orbetello, Italy, to the Chicago World's Fair in 1933 was characterized by the *Chicago Daily News* as "the greatest flight since the Wright Brothers took to the air at Kitty Hawk." The triumph achieved when the Italian general's fleet glided to a landing on Lake Michigan that late summer afternoon was not founded on impulse. It was many years in the making.

Born in Ferrara in 1896, Balbo was attracted to fascism early in the '20s and was one of the quadrumvirate named by Mussolini to head the "March on Rome" in 1922. He donned wings in 1926 and successfully moved up the ladder of fascist officialdom via the air route. The flamboyant, undisciplined spirit which had attracted Mussolini's attention eventually drew his ire, and behind-the-scenes antagonism developed between the two fascist leaders.

Long range flying became Balbo's specialty. In 1928 he spanned the Western Mediterranean with 61 hydroplanes; in 1929 his activities included flights over the Eastern Mediterranean and the Black Sea with 36 two-engine bombers. The same year he visited the U.S. and made a study of American aviation. In 1931 there followed a sensational flight from Rome to Rio. After lengthy negotiations to bring a flight to the Chicago World's Fair, Balbo in 1931 pulled together a high level staff to prepare for the trip. The airmen were carefully selected and superbly trained—two pilots, a radio man and a mechanic in each plane. Of the 96 craft tested for the flight only 25 were chosen. Safety equipment included collapsible life-boats, diving suits and intricate communications. An elaborate 30-station weather gathering system included 19 Italian ships at various locations on the high seas. Weather data from all points was to be relayed to the Air Ministry in Rome and ITT in New York, which in turn would relay it to the expedition. Arrangements were made long in advance to have fuel, fire fighting equipment and qualified technicians at all touchdown points.

The hour for which Balbo had so carefully prepared came on a sunny morning in June 1933 when the 25 twin-hulled *Savoia Marchetti* flying boats with tandem Isotta Fraschini 880 h.p. Asso engines slid off the Tyrrehenian Sea, climbed to altitude and headed across the dangerous peaks of the

Alps with General Balbo himself at the controls of the flagship. His personal colors flew from the nose of his plane and *"I Balbo"* was painted conspicuously above a black star on the fuselage.

The expedition suffered its only serious mishap on the trip across when one plane upset while setting down off Amsterdam after completing the first leg of 870 miles in about seven hours. The 24 remaining aircraft took about six hours to cover the next span of 630 miles to Londonderry, Northern Ireland, where they were delayed two days because of unfavorable weather. The group was delayed another week at Iceland after completing the 930-mile trip from Londonderry to Reykjavik in something over six hours. When the weather cleared enough to continue, Balbo's flyers took off for the longest and most perilous lap of the flight. With a dozen Italian trawlers and two of Mussolini's submarines plying the waters below, the flying boats covered the murky 1,500 miles to Labrador in about 12 hours. The next stops were New Brunswick (800 miles in six hours) and Montreal (500 miles in less than four hours). Hailed in Canada, the flyers tipped their wings to crowds on rooftops the morning they took off for the final 870-mile hop to Chicago. Balbo took no chances, constantly altering his course to keep his flying boats over the chain of lakes and bays leading to the heart of the Midwest.

Throngs estimated at up to 100,000 gathered around Chicago's Navy Pier roared a tumultuous welcome as the planes made a preliminary sweep to check the landing site. The late afternoon summer sun was still high in the heavens when they made their final approach and settled down on the waves bobbing off the Navy Pier breakwater. Balbo himself was in the first echelon of three that touched down. Dedicated commander that he was, he remained aboard his flagship for more than an hour while his crew landed, taxied their planes into position, tied them to mooring buoys and went ashore.

With his men safely in port, Balbo, in full view of the crowd, strolled out on the deck of his flagship as if going to an afternoon tea. Wearing bright military decorations on his neat blue-gray uniform and carrying a swagger stick, Balbo paused, deliberately lit a cigarette, puffed and smiled happily. He "fairly oozed virility" according to one enraptured reporter.

The multitudes roared enthusiastically as the 37-year-old bearded general briskly climbed aboard the waiting *U.S.S. Wilmette* for the official welcoming ceremony by representatives of the City of Chicago, the State of Illinois and the U.S. Government. Meanwhile, U.S. Army planes spelled out ITALIA as they droned overhead.

The reception in Chicago was inspiring, and back in Rome torchlight parades swept up and down the broad boulevards and narrow back streets. The press exploded with praise. The Pope sent his blessings. An American admiral cited Balbo's achievement as "worthy of ancient Rome" and a demonstration of Italy's magnificent diplomacy and friendship. Streets and babies were named after the impressive fascist with penetrating gray-green eyes, brown wavy hair and powerful physique. He continued to impress the world during his days in Chicago and his return trip. New York honored him with a tremendous ticker tape parade down Broadway. When he returned to Rome, a thrilled and proud nation honored him with a Roman reception unprecedented in modern times.

Apart from the drama, the 1933 trip was a superb aeronautical demonstration showing that, with careful planning and high standards, long transoceanic flights were feasible. While the emphasis was on commercial flights, which became a reality six years later, the possibilities of long range military flights were not overlooked in this country and abroad.

Though Il Duce named Balbo as air marshal that summer, in November, when the shouting had died down, Mussolini made himself the head of the Italian air force, as well as the army and navy. Balbo was named Governor of Libya, a post then described as "unimportant and remote."

While the brown-bearded egocentric from Ferrara remained a hero officially in Rome, and unofficially in the hearts of his countrymen, the press of the world speculated from time to time on the eventual outcome of Balbo's African "exile" and the Mussolini-Balbo rivalry. *Liberty* magazine, for example, ran a typical article, "Can Balbo Unseat Mussolini?"

Balbo was still at his North African post when Italy declared war on Great Britain and France June 10, 1940, and he was shot down in flames before the month was out. But his demise was cloaked in mystery. Fascist Italy first reported that Balbo had been downed by the RAF, but British officials responded by saying they had no planes in the area at the time and called Balbo's rift with Mussolini to the attention of the world. They hinted darkly that Benito likely influenced the men who pulled the trigger. This possibility was widely—though quietly—discussed by anti-fascists in Rome as they viewed the spectacular state funeral.

In this country press reports stated that details on Balbo's death may never be known. Later, it was announced by Italy that Balbo was shot down accidentally by Italian anti-aircraft artillery. He reportedly failed to give the proper recognition signal when he returned from an inspection flight and Italian gunners, primed for a British attack, blew him out of the sky.

But however he lived and died, Italo Balbo's name is etched forever in the permanent records of aviation history.

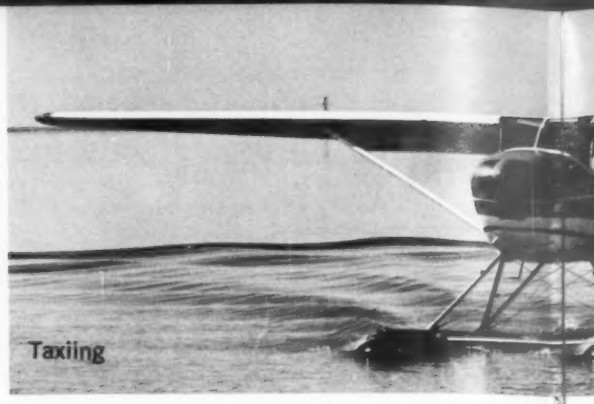
"Basta osare!" —*By Donald R. Foxvog.*

Ticker tape parade down Broadway.

Photo Aeronautica Militare Italiana

There's No Great Problem in

FLying FLoats



Taxiing

Amphibian sets down on concrete

Landplane pilots with an urge to go to sea, via the floatplane route, will find the transition not nearly as drastic as they might suppose.

Anything a landplane can do a floatplane can do—plus being able to operate from water, packed snow or even grass. This last was an annual show stopper at the Cleveland Air Races of bygone years. With several men pushing, the unlikely became the believable as the seaplane slithered off the greensward and into the air.

In the air, the seaplane (or floatplane) responds practically the same as a landplane. However, it is not quite as snappy in acrobatic maneuvers, does not require as much use of ailerons to hold it in a sideslip and is likely to be less stable directionally.

On the other hand, the handling of the plane on the water and during the takeoff is very different from taxiing and taking off on concrete or asphalt.

Beginners should not attempt to taxi a floatplane which is not equipped with water rudders. If the rudders have the proper amount of movement, a seaplane can be turned in calm weather or in a light breeze in a radius less than the wingspan. Water rudders are more effective at slow speeds because they are working in comparatively undisturbed water. At high speed, the stern of the float churns up the water and the rudders are less efficient. Moreover, the speed through the water tends to make the rudders swing up or retract.

The three taxiing positions are often referred to as "idling," "nose-up" and "planing." In the idling position, the plane's speed is usually about seven to eight miles per hour and its attitude is about the same as when at rest. Mastery of the characteristics of the plane at idling speeds is mandatory before moving on to the other speeds. The novice should resist the urge to make high speed turns or any turn in a strong wind.

Any seaplane that is not held against the wind will "weathervane," that is, will automatically point its nose upwind. The plane is constantly trying to do this at a slow speed, particularly when being taxied across or downwind. If an abrupt turn is made while taxiing downwind, centrifugal force and wind blast under the upwind wing may be strong enough to sink the downwind float and turn the plane over. This is particularly true when operating on rivers where the current is opposite to the wind direction.

The plane is put into the second or "nose-up" attitude by holding the elevator controls hard back and opening the throttle until the power reaches about half the maximum for the particular aircraft. The nose will come up whether the stick is held back or not, but this will be hastened somewhat by pulling the elevators up. The nose is raised by the force of the water on the forward bottom of the float. This position is desirable when taxiing in rough water, since it raises the propeller clear of the spray and the plane travels much faster than in the idling position.

The third or "planing" position, sometimes called "running on the step" or simply "on the step," is reached after passing through the nose-up position. The minimum at which the average seaplane will plane is between 20 and 30 miles an hour. The craft is put "on the step" by holding the controls hard back and opening the throttle all the way. After the floats are operating "on the step" the power may be reduced unless a takeoff is planned. While planing, the aircraft is supported *on* the water rather than *in* the water.

Practice takeoffs should be made in a light breeze—enough to make small waves but not enough to whip up whitecaps. The plane should be taxied into position, the *water rudders lifted*, and the pilot should make certain that the intended takeoff path is clear of boats, bathers, floating debris, etc.

When the plane has been turned into the wind, the controls are held hard back and the throttle opened fully. The position of the elevators is *exactly opposite* to that of a landplane on the beginning of the takeoff run. After the plane is on the step, a slight back pressure should be applied to the controls—too much will force the stern of the floats into the water, creating a resistance and appreciably retarding takeoff. Many landplane pilots make the mistake of attempting to drag the plane out of the water, not realizing that the stern of the floats will be pushed into the water at a much lower angle than is required to put the tailwheel of a landplane on the ground.

The seaplane pilot is most likely to get into trouble when landing. Airports always present the same surface, but water conditions change continually. Also, an airport is restricted to aircraft and is free from obstructions, but boats, bathers, buoys, submerged objects and floating debris are always a potential hazard. A pilot should get advance information to be certain that his intended landing area does not have submerged logs, for example, and once

Takeoff

Landing

around the landing area is an absolute minimum before landing.

There are a number of methods of determining the wind direction. If there are no strong tides or currents, boats lying at anchor point into the wind. Sea gulls and other water fowl usually land facing the wind. Smoke and flags show wind direction and the set of boat sails provide a fair approximation.

A seaplane may be landed in a wide variation in positions ranging from approximately level to a full stall. The best position, when the water is reasonably smooth, is at an angle where the step and stern of the float touch the water at the same time. However, a smooth landing may be made in almost any position as long as the stick is moving back at the instant of contact. A full stall landing is entirely safe, but is not as smooth or as pretty as the step-stern position.

Glassy water is a dangerous condition. The student should be aware that he never will be able to determine his exact distance above the surface in an absolutely flat calm. If the landing can be made close and parallel to the shore, or near a boat or other floating object, some perspective can be obtained.

Power stall landings should be used on glassy water. At an altitude of 50 feet or more, the glide should be checked by leveling out and slightly opening the throttle. From this point down, the nose should be raised gradually, applying more power as necessary, until a steady speed of about 15 per cent more than stalling speed is maintained, with just enough power to allow the plane to settle slowly.

No attempt should be made to flare out the landing, and the throttle should be closed only after contact with the water. The same procedure may be followed in night landings, the only precaution being to make sure that there is ample room ahead and there are no obstructions in the way.

The procedure in landing crosswind on water is the same as that on land. The water rudders should be dropped as soon as possible *after* landing and, if the wind is high, more rudder is applied on the downwind side to prevent the plane from swinging into the wind. Crosswind landings should not be attempted in high waves because of the possibility of one float landing in a trough and the other on a crest, allowing the wind to get under the high wing and possibly capsizing the aircraft.

While seaplanes are not usually flown an appreciable distance from water under normal conditions, there are occasions, such as in operating from small bodies of water, when it would be impossible to reach water in case of engine failure.

There is no need to fear a forced landing with a seaplane any more than with a landplane. In fact, in case of rough ground or high grass, the floats of a seaplane will tend to prevent nosing over and, if a solid obstruction must be struck, will absorb the brunt of the shock.

There is no complicated process involved in getting a seaplane rating. All that is required is a valid private license or better and demonstrated proficiency to handle the different techniques required. A flight test with an FAA examiner or inspector satisfies the licensing requirement. Because this is an added rating, no written examination is required.

More information on floatplane handling may be found in Advisory Circular AC 61-21 available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, for 70 cents.

How to Buy USED AIRCRAFT

If you were in the market for a used car, chances are that you'd go to a dealer's lot, look over some of the models, kick a few tires, check under the hood and then take the one that catches your eye for a short test run. You would probably call this a "routine" inspection. Fortunately or unfortunately, depending upon how you look at it, this isn't the way to purchase a used aircraft.

Buying a used airplane is not a "do-it-yourself" project. It is highly recommended that you have the plane you choose inspected by a qualified person before you buy. The condition of the aircraft and the state of its maintenance and records can be determined by a certificated airframe and powerplant (A&P) mechanic, an approved repair station, or someone otherwise qualified on the particular make and model aircraft.

After receiving assurance the aircraft is safe, determine if it has a "clear title." This means seeing that there are no encumbrances such as liens, chattel mortgages or other unsatisfied claims against the plane. You can make sure it has a clear title by searching the aircraft records yourself, or having it done by an attorney or an aircraft title-search company. *Don't count on the dealer to take care of this chore.*

All aircraft public records maintained by the FAA are on file in Oklahoma City. Lists of title-search companies and attorneys who perform this service may be secured by writing to FAA, Aircraft Registration Branch (FS-965), FAA Building, 5300 South Portland Ave., Oklahoma City, Okla. 73119.

There is no substitute for examining the aircraft's records to secure a complete history of ownership and to determine if there are any outstanding liens or mortgages. This simple procedure will eliminate many delays in registering an aircraft and the headaches many aircraft buyers suffer because they fail to take this one important step before signing on the dotted line.

On closing the deal, you should receive the following documents:

- Bill of sale.
- Certificate of Airworthiness (FAA Form 1362B).
- All logbooks, aircraft and engine records.
- Equipment list.
- Weight and balance data.
- Maintenance manual, service letters, bulletins, etc.
- Airplane flight manual or operating limitations.

Keep in mind that the current 100-hour or periodic inspection does not mean that the aircraft is necessarily "first class." It only indicates that the aircraft was found to be in a condition for safe operation at the *time of inspection.*

Buying an amateur-built or experimental airplane is a different story. You should contact an FAA maintenance inspector at your local General Aviation District Office before you buy. The FAA inspector will explain the requirements for experimental certification.

The same thing is true if you are considering the purchase of a surplus military airplane. You will find that some are not eligible for FAA certification in the standard, restricted or limited classifications. Since no civil aircraft may be flown unless certificated, your FAA inspector will advise you of eligible aircraft and certification procedures.

Once the deal is closed, don't figure that you can don the goggles, knot the scarf and take off. Something else has to take place. Before you fly it as your own, you must apply for a Certificate of Registration.

When applying for this certificate, FAA Form 8050, Aircraft Registration Form, you must complete Parts 1, 2 and 3. Part 1 is the Application for Registration, 2 is the Bill of Sale and 3 is the Certificate of Aircraft Registration. Instructions for preparing and submitting the form are attached to the form. A bill of sale form equivalent to Part 2 of Form 8050 may also be used as proof of ownership.

It should be emphasized that before the airplane can be legally flown you must send the completed Form 8050 and the proper fees to the FAA Aircraft Registration Branch in Oklahoma City. The yellow copy of the Application for Registration, Part 1, should be kept in your aircraft until the FAA returns Part 3, the Certificate of Registration.

The Certificate of Registration immediately expires when (a) the registration of the aircraft is cancelled at the written request of the owner; (b) the aircraft is destroyed or scrapped; (c) the ownership of the aircraft is transferred; or (d) the aircraft is registered under the laws of a foreign country. (An aircraft is eligible for registration only if it is owned by a citizen of the United States and is not registered under the laws of any foreign country.)

When selling his aircraft, the owner must notify the FAA by filling in the back of his Certificate and Registration and mailing it to the Aircraft Registration Branch. The chain of title must be unbroken.

This DC-3 was built to FLY and FLY and FLY

The Egytians have their pyramids, the Chinese their wall and the United States has the DC-3. There is a debate, at least as far as North Central Airlines' officials are concerned, which one will prove the more durable.

They point with pride to old "Number 728" which they retired from regular passenger service last spring after the venerable bird had clocked 83,052 hours and 52 minutes. By their reckoning "728" has more time in the air than any plane in history. No ifs, ands or buts about it, they say.

Time for retirement? Not at all. Old "728's" flying days are not over by a long shot. In fact she started a brand new career at the advanced age of 26 as an executive aircraft and a flying laboratory to test aircraft paints and accessories.

To suit her to her new role, North Central mechanics gutted her interior and installed a deluxe cabin, galley and powder room. Pilots joke that "everything about '728' has changed but the shadow and the serial number;" but the fact is the ship's airframe is 90 per cent original. Company officials say it's a better and safer plane today than when it was built, considering the improved equipment now installed.

Its aluminum exterior glistening like a newly minted dime, and resplendent in new paint trim with "Herman," the company's blue mallard duck, winging along on the vertical stabilizer, "728" looks like any other well kept DC-3. But the inside story is something else again.

Gone are the standard 26 seats which jam the usual DC-3 cabin—"728" has accommodations for only 11 passengers, with deluxe airline chairs and a large divan. There is a blue wool carpet; the walls are lightweight walnut, set off by a trim of bamboo matting. The ceiling is beige fabric.

There are tables, lamps and a television set. The AM radio and stereo have remote controls. The windows are oversize with tinted glass to reduce glare from the sun. Two picture windows have been installed for greater visibility. Forward is a large galley for food and beverage service. Aft is a commodious clothes closet. The lavatory is appointed like a modern lounge, with running water regulated by gold plated faucets bearing the initials "H" and "C" which company officials insist stand for Hal Carr, president of North Central.

The spectacular flying career of "728" began soon after it rolled off Douglas Aircraft's assembly line at Santa Monica, Calif., Aug. 11, 1939. Its first owner, Eastern Air Lines, piled up 51,389 hours and 12 minutes on "728" before selling it to North Central in 1952. For the next 13 years "728" flew North Central's 70-airport, 7,000-mile system where it accumulated an additional 31,663 hours.

Company statisticians, thumbing old log books, have compiled an impressive stack of statistics, not the least being the estimated 260 million passenger-miles. They figure the plane has flown 12 million statute miles, the equivalent of 25 trips to the moon and back.

The ship is estimated to have worn out 550 main landing gear tires, 25,000 spark plugs and 68 pairs of engines. It has burned close to eight million gallons of gasoline, enough to run the family buggy 10,000 miles a year for more than 11,000 years. "728" has taxied well over 100,000 miles.

When North Central officials, headed by Carr, flew "728" home to Palm Springs in 1966, Donald W. Douglas, chairman of the board of Douglas Aircraft, was reintroduced to his handiwork. He presented Carr with a plaque, which was subsequently mounted in the plane, commemorating "728's" durability and its contributions to the DC-3 legend.

If "728's" past performance is any guide, this memento of service might be joined by a matching 26-year plaque in 1992.

—By Frank Clifford.

for this couple . . .

FLYING IS NO BIG THING

Like many other youths, Lee and Mary Kitchens of Richardson, Texas, had a lifetime yearning to fly. While dating in college—he was graduated from Southern Methodist University and she from Texas Woman's University—they visited airports, dreaming of the possibility of flying an airplane.

Lee and Mary had the usual financial obstacles facing youngsters and an additional problem as well. Both are midgets—he stands 4 feet 1 inch; she is 3 feet 11 inches.

But 10 years after their marriage, and with Kitchens now an electrical engineer at Texas Instrument, Inc., the couple made an important decision. They bought a Piper *Tri-Pacer*, convinced that they could make the modifications that would be necessary before they could fly it.

"A problem is only something for which a solution has not yet been found," Kitchens said. And he worked out the solution and found an imaginative mechanic, Bob Burke of Highland Park Airport, Dallas, to do the job and satisfy the safety-minded FAA.

Basically, the modifications consist of extensions to the rudder pedals mounted on an aluminum box, redesigning of the flap handles and bending and extending the brake handle upward so it can be reached by the small pilots. The starter button was moved to the instrument panel.

Next Kitchens had individual seats made of lightweight material. They are set on top of the regular seats and can be shifted from the right side to the left side or removed as needed. The modifications to the controls are also portable so they can be switched from side to side or taken out in a matter of minutes.

The modifications were finished last year. Kitchens submitted FAA Form 337 with pictures to the Dallas General Aviation District Office and the modifications were studied and approved. The Kitchens' dream was almost fulfilled.

The couple now set about proving that size is no handicap to learning to fly. As is becoming the head of the house, Lee Kitchens soloed first; his only medical restriction is that he must wear glasses while flying. Mrs. Kitchens soloed the day after her husband.

The couple attended ground school classes together and both scored high on their written exams. The owner of the airport flying school, Bert Corry, an FAA-designated examiner, gave Kitchens his private checkride. It was a breeze for Kitchens—a man with a mission.

Mrs. Kitchens, weighing only 60 pounds, had trouble with 720 degree turns because she didn't have the strength to hold back the wheel. She solved that problem with trim tabs and passed easily.

The Kitchens family, which has grown to four, uses its *Tri-Pacer* for pleasure flying and weekend trips. Last summer the family flew to Philadelphia to attend the convention of the Little People of America where the Kitchens proudly showed their plane and related their achievements to other little people. They are the first flying couple in LPA. Mrs. Kitchens now has ambitious plans of her own—to enter local air races such as the Dallas Doll Derby and the Skylady Derby.

In recounting their cross-country flying last summer, the couple said, "Everyone was great to us, and we can't say enough about the people in the flight service stations across the country. They went out of their way to be helpful, and everywhere we went people were interested in us and our airplane."

The Kitchens now stand tall not only in world of little people, but they rate high in any munity, especially in aviation circles.

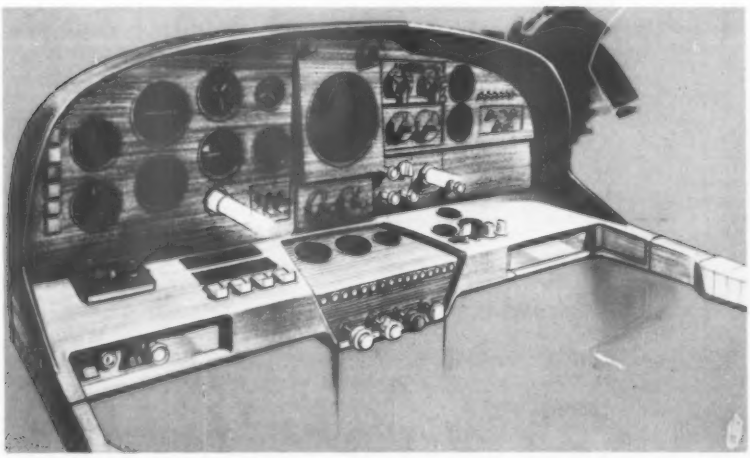
—By Hazel McKendrick

AVIATION NEWSBRIEFS

• THE MOST RECENT SST ORDER came from B. Craig Raupe, left, Eastern Airlines vice president-federal affairs, who delivered a $200,000 deposit to FAA Administrator William F. McKee to reserve two delivery positions. FAA now has deposits for 96 supersonic transports from 21 airlines and one leasing company.

• A MILLION SQUARE MILES IN THE CARIBBEAN are now being served by the $3 million air traffic control facility dedicated in San Juan, P.R., this spring by FAA Administrator McKee. The building houses the Air Route Traffic Control Center which provides for safe flow of air traffic, as well as an international flight service station which provides pilot preflight and inflight briefings, airport advisories, weather observations, flight plan handling and an air-ground radio communications link over oceanic control areas.

• AN EFFORT TO SIMPLIFY AND STANDARDIZE INSTRUMENT PANELS is now under way by the FAA to make cross-country IFR and VFR flights easier and safer for the nonprofessional pilot. The panel designed by the FAA (below) incorporates a new instrument layout, a pictorial navigation display using VOR/DME data and automatic aircraft stabilization equipment. Participating in evaluation tests in a Cessna 210 at the National Aviation Facility Experimental Center in Atlantic City, N.J., will be 10 non-professional FAA pilots with no instrument time. They will be given approximately 20 hours in an aircraft simulator which has been modified to resemble the experimental panel. This will be followed by instrument checks in the plane itself. The effectiveness of the new instrument layout will be measured by the learning time of the pilots. Recorded test data will be analyzed by a computer to determine not how the students feel about the cockpit, but how well they perform.



New Safety Regulations Proposed For Sport Parachute Jumping

The Federal Aviation Agency has proposed new safety regulations affecting sport parachute jumping.

Authorization by FAA would be required for sport parachutists to jump in controlled airspace. Their airplanes, when operating in controlled airspace, would need two-way radio unless otherwise authorized by air traffic control. In addition, jumpers would be required to give FAA six hours advance notice when jumping outside of controlled airspace.

The proposed rules also would prohibit anyone from jumping within eight hours after drinking an alcoholic beverage. Additionally, information concerning the size of jump sites and drop zones would be required for jumping in either controlled or uncontrolled airspace.

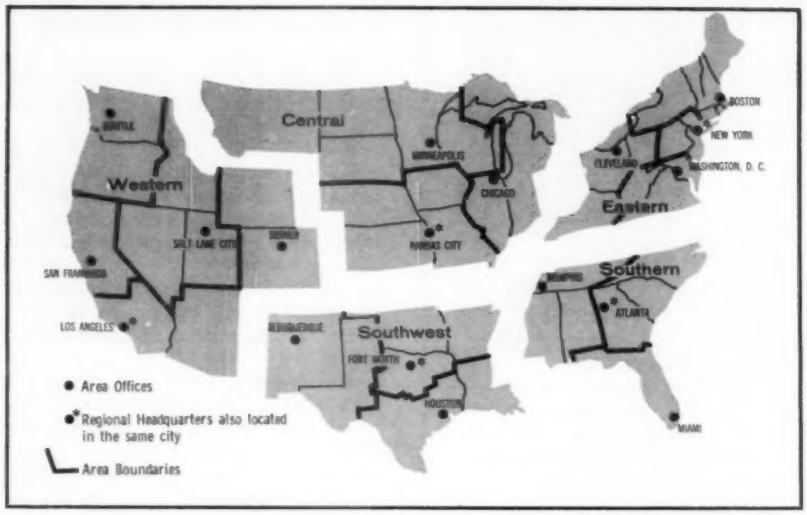
FAA's proposal stems from a study of comments presented at a November 1965 public hearing which considered various revisions to present rules. Primary consideration was given to a petition submitted by the Air Transport Association, and endorsed by the Air Line Pilots Association, to ban nonemergency parachute jumping within all controlled airspace as well as in "off-airway" space.

The rule proposal would provide FAA air traffic control facilities with more complete details on jumping arrangements and related information. Consequently, control facilities would be able to keep pilots more fully informed on jumping activity along their routes.

At present, FAA authorization is required only for jumps over or into congested areas, open air assemblies and in relatively small but busy control zones where Federal airport traffic control towers are located. For jumping in controlled airspace other than control zones —any airspace where aircraft may be subject to air traffic control—jumpers now are required only to notify FAA six hours in advance. Moreover, present rules do not require FAA notification for parachute jumps in uncontrolled, off-airway space. But the proposal would require notification for jump activity in such airspace where, presently, flight activity is increasing.

Deadline for comments on the notice of proposed rule-making (Docket No. 6762; Notice 66-18) is Aug. 10, 1966. Comments should be submitted in duplicate to FAA, Office of General Counsel, Attention: Rules Docket, 800 Independence Ave., S.W., Washington, D.C. 20553.

LATEST AIRPORT PROGRAM ANNOUNCED; REQUEST DEADLINE IS JULY 15



The Federal Aviation Agency has announced that requests for aid under the Federal-aid Airport Program (FAAP) for Fiscal Year 1967, as authorized by the Federal Airport Act, are now being accepted. Deadline is July 15, 1966.

The funds available under FAAP will be used to assist cities, counties, states and territories in developing their airport facilities to meet the needs of the national system of public airports as identified by the National Airport Plan. Under this program, grants are made on a cost sharing basis, with the Federal Government generally providing 50 per cent of the cost of approved projects.

Eligible projects include land acquisition and the development of runways, taxiways and lighting. Terminal buildings and hangars are not eligible under the Federal Airport Act. Priority will be given to development which offers the greatest public benefit.

Public agencies intending to apply for aid under FAAP were urged to apply to the nearest FAA area office where information and assistance also may be obtained. The addresses for FAA area offices are as follows:

Chicago, 3166 Des Plaines Ave., Des Plaines, Ill. 60018; Kansas City, Mo., 4747 Troost Ave., 64110; Minneapolis, 6301 34th Ave., South, 55450.

Boston, N. W. Industrial Park, Burlington, Mass. 01804; Cleveland, 21010 Center Ridge Rd., Rocky River, Ohio 44116; New York, JFK International Airport, Jamaica, N. Y. 11430; Washington, D.C., 800 Independence Ave., S.W., 20553.

Atlanta, 3400 Whipple St., East Point, Ga. 30320; Memphis, 3400 Democrat Rd., 38118; Miami, International Airport, 33159.

Albuquerque, N.M., East Central and San Mateo Sts., 87108; Fort Worth, Bldg. #4, Haslet Rd., 76101; Houston, 8345 Telephone Rd., 77060.

Denver, 8055 East 32nd Ave., 80207; Los Angeles, 5885 W. Imperial Highway, 90045; Salt Lake City, 116 North 23rd West, 84116; San Francisco, 831 Mitten Rd., Burlingame, Calif. 94010; Seattle, Boeing Field, 98108.

Training 'em Young

This youngster might well be taking a look into his future as he scans the horizons from the tower at Municipal Airport, Torrance, Calif. The other fellow? He's FAA's Edward S. Downs who has been directing air traffic since before World War II.

AIRPORTS? AGENCY HAS LIST SHOWING 9,566

U.S. airports on record with the Federal Aviation Agency at the end of last year totaled 9,566, an increase of 76 over 1964.

This increase reflects both new airport construction and more extensive airport reporting service on the part of the Agency. During 1965, 378 airports were reported to FAA for the first time and 302 airports were reported abandoned.

About two-thirds of the national total of 9,566 airports—5,996—are privately owned. Lighted runways are provided at 2,878 airports, and paved runways at 2,747.

FAA's current analysis of U.S. civil and joint civil-military airports, heliports and seaplane bases shows that Texas, with 846, leads all other states.

The six leading states in number of airport facilities reported to the FAA are as follows:

(1) Texas 812 (1964), 846 (1965); (2) California 627 (1964), 624 (1965); (3) Alaska 549 (1964), 547 (1965); (4) Pennsylvania 481 (1964), 463 (1965); (5) Ohio 397 (1964), 401 (1965); (6) New York 321 (1964), 328 (1965).

Pilot Reports 'Density Altitude' Motion Picture 'Saved My Neck'

FAA's new 29-minute color movie, "Density Altitude," received the highest praise possible from a pilot: "I believe your film saved my neck."

After logging 20 hours in a new aircraft, the pilot flew to a meeting at Boulder, Colo., and noticed his plane did not perform at Boulder's mile-high airport as well as it did at sea level.

That night he saw "Density Altitude" and later delayed his departure until the cool of the evening rather than attempt to take off in 90 degree temperature. He told the FAA that the film probably prevented an accident.

Information concerning the film is available from FAA area offices.

Letters

FAA

FAA Aviation News welcomes comments from the aviation community. We will reserve this page for an exchange of views. No anonymous letters will be used, but names will be withheld on request.

• Lighter-Than-Air

I have constructed a miniature blimp-like balloon capable of carrying two or three passengers. With the aid of a small gasoline engine, it can attain a speed of approximately 20 m.p.h. The balloon is helium-inflated and carries a small cabin.

Is it lawful to operate this machine without a state or Federal license and, if so, what height and speed is permissible in order not to interfere with organized flight and Federal air lanes?

Chicago

Both you and your airship need certificates from the FAA before taking to the air. First you will at least need a student pilot certificate. Before you will be allowed to fly solo as a student pilot you will need certain kinds of flight instruction and experience. Presuming you will want to take your friends for a ride when passenger flight with your airship is permitted, you then will need a private pilot certificate with a lighter-than-air category (airship class) rating. You can get full information on how to obtain pilot certificates and how to get your airship certificated as an amateur-built experimental aircraft from any FAA General Aviation District office. The one nearest you is at DuPage County Airport, West Chicago, Ill. 60185.

• On Silent Wings

Does recent experience as a pilot of a Schweizer 1-26 sailplane meet the recent experience requirement of the Federal Aviation Regulations for the purpose of carrying passengers in the Schweizer 2-22?

Cincinnati

No. FAR 61.47(a) requires recent experience in aircraft of the same category, class and type. "Type," as applied to airman certification, means a specific make and basic model of aircraft, including modifications that do not change its handling or flight characteristics. In this sense, the Schweizer 1-26 and 2-22 sailplanes are not considered to possess the same handling and flight characteristics.

• Only Hears Rumors

I would like to know if I will lose my civilian flight instructor rating while I am in Viet Nam, if I fail to renew it. I have heard only rumors and would like to get an informed answer?

APO San Francisco

You will not "lose" your Flight Instructor Certificate because of failure to renew it before its expiration date, but you may not act as a Flight Instructor until your Certificate is renewed. You may renew it at any time by demonstrating your current competency to give effective flight instruction. We have sent you Advisory Circular AC 61-26, Flight Instructor Requalification Program and Increased Student Pilot Operating Requirements, *which contains information regarding expiration dates, renewal of flight instructor certificates, and the flight instructor requalification program. (Single copies are available from FAA, HQ-438, Washington, D.C. 20553.)*

• May a Felon Fly?

At present I am incarcerated for a felony, but in the near future I expect to apply for a commercial pilot license. Would my felony conviction affect my application? How many hours are necessary for a commercial license? Is it necessary to have a college education?

Massachusetts Correctional Institution
West Concord, Mass.

A felony conviction does not, itself, affect your eligibility for a commercial pilot certificate. However, you must also have an FAA medical certificate. The reasons for the felony conviction may be considered in determining whether the applicant has "a character or behavior disorder that is severe enough to have repeatedly manifested itself by overt acts."

An applicant for a commercial pilot certificate must have at least 200 hours of flight time, which must be divided into certain kinds of experience. Details are described in FAR Part 61, "Certification: Pilots and Flight Instructors," sold for 50 cents by the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402. A college education is not necessary.

• Cause of Accidents

I am interested in getting some statistical information regarding fatalities in light plane accidents, particularly in a breakdown as to the probable cause. Pilot error has been cited as the main reason for accidents. However, it occurs to me that pilots, being human, are subject to human error. Therefore, to what extent are "pilot errors" a result of gross carelessness and therefore correctable?

Ronald B. Woodland
West Hartfield, Mass.

Because the Civil Aeronautics Board is charged by law with determining the official "probable cause" of accidents, we forwarded your letter to that office and understand CAB used the following publication to answer your letter—"General Aviation Accidents, A Statistical Review, Calendar Year 1963." This publication, like other studies, indicates that the vast majority of accidents are caused by "pilot error."

"General Aviation Accidents" lists the following causal factors:

- *Misjudged distance, speed, altitude or clearance—632 accidents and 49 fatalities*
- *Improper operation of brakes and/or flight controls on the ground—422 accidents and two fatalities*
- *Failed to maintain flying speed—322 accidents and 125 fatalities*
- *Improper level off—320 accidents and one fatality*
- *Inadequate or improper preflight preparation and/or planning—319 accidents and 48 fatalities*
- *Selected unsuitable terrain—311 accidents and five fatalities*
- *Operated recklessly (related to poor judgment, neglect, forgetfulness)—303 accidents and 115 fatalities*
- *Failed to extend or assure landing gear down and locked—232 accidents and no fatalities*
- *Inadequate or incorrect compensation for wind conditions—205 accidents and no fatalities*
- *Continued VFR flight into adverse weather conditions—179 accidents and 127 fatalities*
- *Failed to observe objects or obstructions—166 accidents and 24 fatalities*
- *Improper inflight decisions or planning—106 accidents and 19 fatalities*
- *Inadvertent retraction of gear on ground—106 accidents and no fatalities*
- *Became lost/disoriented on VFR flight—78 accidents and 16 fatalities.*

There are about 20 more categories involving smaller numbers of accidents.

The FAA does not, of course, say that each fatal accident is due to "gross carelessness." Some accidents may be due to only a little bit of carelessness. Others, we feel, relate to inadequate training. We note that on an average day two to three people die in general aviation accidents and many of these accidents could be avoided.

• Satisfied Customer

In the past year I have been doing a considerable amount of traveling by private aircraft between Cincinnati and Tampa, and have had many contacts, both personal and by radio, with most of the facilities between these points. I have always been given the utmost consideration and cooperation by your personnel.

Also, in the past several months, I have been working towards an instrument rating which has required me to do quite a bit of practicing in the Cincinnati area and, once again, have been helped immeasurably by FAA personnel.

In addition to all the people concerned with day-to-day traffic handling, I have been in contact with personnel of GADO #5 for both written and flight tests. They have been courteous and conscientious in administrating these tests.

Stanley Frisch
Cincinnati

When people are satisfied with the service, they generally don't take time to write. We're glad you did. Thank you.

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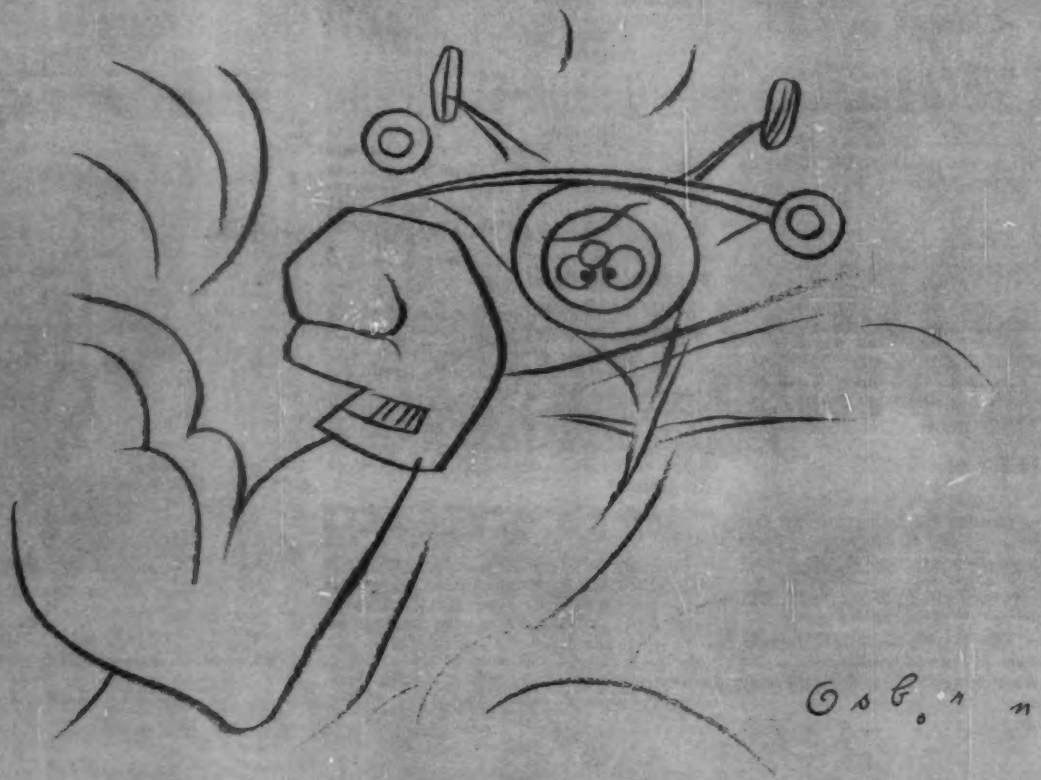

Get the facts; don't fly on hunches.